REMARKS

This Amendment is submitted in response to the final Office Action mailed on January 14, 2010. A Request for Continued Examination ("RCE") ($810.00) is submitted herewith. The Director is authorized to charge $810.00 for the RCE and any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712174-00491 on the account statement.

Claims 41-42, 44-45, 47-64, 66-67 and 69-86 are pending in this application. Claims 1-40, 43, 46, 65 and 68 were previously canceled without prejudice or disclaimer, and Claims 50-62 and 72-80 were previously withdrawn from consideration. In the Office Action, Claims 41-42, 49, 63-64 and 71 are rejected for nonstatutory double patenting. Claims 41-42, 44-45, 47-49, 63-64, 66-67, 69-71 and 81-86 are rejected under 35 U.S.C. §103. In response, Claims 41 and 63 have been amended, and Claims 42 and 64 have been canceled. The amendments do not add new matter. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

In the Office Action, Claims 41-42, 49, 63-64, 71, 81-82 and 84-85 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,203,944 B1 to Turner et al. ("*Turner*"). In response, Applicants have amended Claims 41 and 63 and canceled Claims 42 and 64. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that *Turner* fail to disclose or render obvious each and every element of independent Claims 41 and 63 and Claims 49, 71, 81-82 and 84-85 that depend therefrom.

Currently amended independent Claims 41 and 63 recite, in part, an anode material having a reaction phase containing an element capable of generating an intermetallic compound with lithium and carbon, and wherein the reaction phase contains tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver, and a ratio of carbon in the reaction phase ranges from about 10% by weight to about 40% by weight, and a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy. These amendments do not add new matter. The amendments are supported in the Specification at, for example, Abstract; page 1, paragraphs 11 and 14; page 2, paragraph 16; page 3, paragraphs 36-39; page 6, paragraph 71; page 7, paragraph 85; Table 4-1. In contrast, *Turner* is deficient with respect to the present claims.

For example, *Turner* fails to disclose or suggest an anode material having a reaction phase containing carbon as recited, in part, by independent Claims 41 and 63. The Patent Office asserts that *Turner* discloses an anode mixture layer having a reaction phase containing tin, iron and carbon (graphite). See, Office Action, page 5, lines 8-14. However, the portions of *Turner* relied on by the Patent Office merely disclose samples containing a mixture of two distinct phases: a Sn_2Fe phase and a $SnFe_3C$ phase. See, *Turner*, column 19, lines 55-63; column 20, lines 25-33. Nowhere does *Turner* teach or suggest that the reaction phase of its anode active material is the $SnFe_3C$ phase containing carbon. To the contrary, *Turner* teaches that the Sn_2Fe phase is the phase which reacts with lithium during cycling. See, *Turner*, column 18, lines 9-26 ("To study the reaction of Sn_2Fe with lithium during cycling, two in-situ x-ray diffraction cells were constructed. . . "). One of ordinary skill in the art would thus understand that *Turner* merely discloses a reaction phase containing Sn_2Fe and a separate, non-reactive phase containing carbon. As such, *Turner* fails to teach or suggest an anode material having a reaction phase containing carbon as required, in part, by the present claims.

Moreover, *Turner* fails to disclose or suggest an anode material wherein a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy. The Patent Office asserts that "'[a] peak of carbon that is obtained in a region lower than about 284.5 eV by x-ray photoelectron spectroscopy' is an inherent property of the Turner anode material because Turner et al discloses an anode material with a similar composition as the anode material recited in claims 41 and 63." See, Office Action, page 6, lines 6-10. However, Applicants respectfully submit that the composition of *Turner* is not similar to that of the present claims because the anode active material of the present claims includes carbon in the reaction phase along with tin and the additional claimed constituent. In contrast, *Turner* fails to teach or disclose an anode material having a reaction phase containing carbon as discussed previously.

Furthermore, one skilled in the art would understand that the claimed property depends not only on the composition of the anode material but how it is formed. Applicants respectfully note that the anode active material of the present claims having the claimed peak of carbon may be formed, for example, by mechanical alloying of the carbon with the other claimed elements. See, Specification, page 4, paragraph 48. One skilled in the art would understand that mechanical alloying involves two steps: ball milling and sintering and applying hot isostatic pressure to fuse the elements together. See, Wikipedia, "Mechanical alloying,"

http://en.wikipedia.org/wiki/Mechanical_alloying. In contrast, *Turner* merely teaches forming its material by combining tin, iron and carbon in a ball mill. See, *Turner*, column 19, lines 55-63; column 20, lines 25-33. Nowhere does *Turner* teach fusing the elements together by sintering and applying hot isostatic pressure after ball milling. As such, one skilled in the art would understand that *Turner* fails to disclose or suggest, either expressly or inherently, an anode material wherein a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy in accordance with the present claims.

Accordingly, Applicants respectfully request that the rejection of Claims 41-42, 49, 63-64, 71, 81-82 and 84-85 under 35 U.S.C. §103(a) to *Turner* be withdrawn.

In the Office Action, Claims 41-42, 45, 47-49, 63-64, 67, 69-71, 81-82 and 84-85 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,495,291 B1 to Kohno et al. ("*Kohno*") in view of Japanese Patent Publication No. 2000-311681 A to Kawakami et al. ("*Kawakami*"). In response, Applicants have amended Claims 41 and 63 and canceled Claims 42 and 64. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or render obvious each and every element of independent Claims 41 and 63 and Claims 49, 71, 81-82 and 84-85 that depend therefrom.

For example, even if combinable, the combination of *Kohno* and *Kawakami* fails to disclose or suggest an anode material having a reaction phase containing carbon, tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver as recited, in part, by independent Claims 41 and 63. The Patent Office asserts that *Kohno* discloses an anode active material having the following composition: $M1_xM2_yC_{1-x-y}$ wherein x and y are atomic ratios, M1 may be Sn and M2 is an element selected from the group consisting of Mg, Ca, Sr, Ba, Ti, Zr, V, Ta, Cr, Mo and W. See, Office Action, page 6, lines 18-22. However, nowhere does *Kohno* suggest that the elements M1, M2 and C are all contained in a single reaction phase. Instead, *Kohno* teaches that its negative electrode active material contains two distinct phases, one containing carbon and the other containing elements M1 and M2:

> The composition of the carbon-containing phase and the composition of the crystal phase containing the elements M1 and M2 can be analyzed by an X-ray microanalyser (EPMA), an energy dispersive X-ray spectroscopy (EDX) or an Auger electron spectroscopy (AES).

See, *Kohno*, column 7, lines 28-32. As such, *Kohno* fails to disclose the claimed reaction phase. The Patent Office relies on *Kawakami* merely for the disclosure of a reaction phase containing nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, or silver. See, Office Action, page 7, lines 11-22; page 8, lines 1-7. Nowhere does *Kawakami* disclose or suggest a single reaction phase containing the claimed elements. As such, even if combinable, *Kohno* and *Kawakami* fail to teach or suggest an anode material having a reaction phase containing carbon, tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver as required, in part, by the present claims.

Moreover, even if combinable, the combination of *Kohno* and *Kawakami* fails to disclose or suggest an anode material wherein a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy. One of ordinary skill in the art would understand that carbon does not have a peak lower than about 284.5 eV by XPS unless it is bonded with another element. See, Specification, page 3, paragraphs 36-37. However, as discussed previously, the combination of *Kohno* and *Kawakami* fails to disclose or suggest a reaction phase which contains carbon, tin and the claimed constituent. Instead, *Kohno* merely teaches an anode active material containing carbon as a separate phase. See, *Kohno*, column 7, lines 28-32. Therefore, even if combinable, *Kohno* and *Kawakami* fail to teach or suggest an anode material having a reaction phase containing carbon, tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver in accordance with the present claims.

Accordingly, Applicants respectfully request that the rejection of Claims 41-42, 45, 47-49, 63-64, 67, 69-71, 81-82 and 84-85 under 35 U.S.C. §103(a) to *Kohno* and *Kawakami* be withdrawn.

In the Office Action, Claims 44 and 66 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Kohno* in view of *Kawakami*. In response, Applicants have amended Claims 41 and 63 and canceled Claims 42 and 64. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 44 and 66.

As discussed previously, the combination of *Kohno* and *Kawakami* fails to disclose or suggest an anode material: (1) having a reaction phase containing carbon, tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver; and (2) wherein a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy as required, in part, by independent Claims 41 and 63 from which Claims 44 and 66 depend. The Patent Office further asserts that it would have been obvious to try to form an alloy using a constituent selected from the group consisting of zinc, indium and silver. See, Office Action, page 8, lines 15-51. However, even if one of ordinary skill in the art were to use zinc, indium or silver in the composition of *Kohno* or *Kawakami*, the cited references fail to teach that such an element is contained in a reaction phase with carbon or that carbon has bonded with another element such that a peak of carbon obtained by X-ray photoelectron spectroscopy is in a region lower than about 284.5 eV. Thus, Applicants respectfully submit that, even if combinable, *Kohno* and *Kawakami* fail to disclose every element of Claims 44 and 66.

Accordingly, Applicants respectfully request that the rejection of Claims 44 and 66 under 35 U.S.C. §103(a) to *Kohno* and *Kawakami* be withdrawn.

In the Office Action, Claims 83 and 86 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Kohno* in view of *Kawakami*. In response, Applicants have amended Claims 41 and 63 and canceled Claims 42 and 64. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 83 and 86.

As discussed previously, the combination of *Kohno* and *Kawakami* fails to disclose or suggest an anode material: (1) having a reaction phase containing carbon, tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver; and (2) wherein a peak of carbon is obtained in a region lower than about 284.5 eV by X-ray photoelectron spectroscopy as required, in part, by independent Claims 41 and 63 from which Claims 44 and 66 depend. The Patent Office further asserts that it would have been obvious to include a carbonaceous material capable of inserting and extracting lithium in an equal ratio to the anode material. See, Office Action, page 8, lines 15-51. However, this assertion fails to remedy the deficiencies of *Kohno* and *Kawakami* with respect to Claims 83 and 86.

Accordingly, Applicants respectfully request that the rejection of Claims 83 and 896 under 35 U.S.C. §103(a) to *Kohno* and *Kawakami* be withdrawn.

In the Office Action, Claim 63 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1 and 7-8 of U.S. Patent Application No. 11/267,641. In response, Applicants respectfully note that Claims 1 and 7-8 of U.S. Patent Application No. 11/267,641 have been canceled, and pending Claims 10-20 of that application require a specific electrolyte solution including an acid anhydride or derivative thereof and a derivative of a cyclic carbonate having a halogen atom. As such, the pending claims of U.S. Patent Application No. 11/267,641 are patentably distinct from Claim 63.

In the Office Action, Claims 41-42 and 63-64 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-3, 9-11, 18-19 and 26-27 of U.S. Patent Application No. 12/026,594. In response, Applicants respectfully submit that Claims 1-3, 9-11, 18-19 and 26-27 are patentably distinct from Claims 41-42 and 63-64 of the present application because Claims 1-3, 9-11, 18-19 and 26-27 require that a phosphorous content of the anode active material is from 0.1 wt% to 2.2 wt%, whereas Claims 41-42 and 63-64 do not require any phosphorous in the anode active material.

In the Office Action, Claims 41, 49, 63 and 71 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-2 and 7-8 of U.S. Patent Application No. 11/268,010. Applicants respectfully note that this rejection is provisional and, thus, Applicants will address this rejection at such time as allowability has been indicated in one of the cases, if the rejection is still relevant at such time.

In the Office Action, Claim 63 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 4, 7 and 9-10 of U.S. Patent Application No. 11/267,116. In response, Applicants respectfully note that Claims 4, 7 and 9-10 of that application are directed to an electrolyte solution comprising 4-fluoro-1,3-dioxolane-2-one and having a specific fluorine ion content. As such, Claims 4, 7 and 9-10 of U.S. Patent Application No. 11/267,116 are patentably distinct from Claim 63.

In the Office Action, Claims 41-42 and 63-64 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-3 and 10-12 of U.S. Patent Application No. 11/225,540. In response, Applicants respectfully submit that Claims 1-3 and 10-12 are patentably distinct from Claims 41-42 and 63-64 of the present application

because Claims 1-3 and 10-12 require a CoSnC containing material, whereas Claims 41-42 and 63-64 merely require a reaction phase containing tin and at least one constituent selected from the group consisting of nickel, copper, iron (Fe), cobalt, manganese, zinc, indium, and silver. Moreover, Applicants respectfully note that this rejection is provisional and, thus, Applicants will further address this rejection at such time as allowability has been indicated in one of the cases, if the rejection is still relevant at such time.

Accordingly, Applicants respectfully request that the provisional rejections of Claims 41-42, 49, 63-64 and 71 under obviousness-type double patenting be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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